Agent Orange Brief

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AGENT ORANGE AND DIABETES

What is diabetes?

Diabetes mellitus is characterized by high blood sugar levels that result from defects in the body's ability to produce and/or resistance to the actions of the hormone insulin. There are two major types of diabetes: type I and type II. Type I occurs most commonly among juveniles but occasionally among adults. Type II occurs primarily in adults and only occasionally in juveniles.

More than 90 percent of the approximately 7 million diabetics is the United States are type II diabetics. Many of these patients initially exhibit few or no symptoms, although increased urination and excessive thirst may be present. Diabetes is associated with high levels of serum glucose. The presence of obesity or a strongly positive family history for mild diabetes suggests a high risk for the development of type II diabetes.

Diabetes is the Nation's sixth-leading cause of death and the leading cause of blindness in the United States. It can also lead to heart disease, stroke, kidney failure, and amputation. Approximately 15 percent of veterans receiving care in VA medical facilities have been diagnosed with diabetes. VA diabetes patients require an estimated $2.5 billion dollars annually for their treatment and healthcare, including more than 200,000 bed-days per year.

Nationally, more than 16 million people are estimated to be diabetic. More than $100 billion are spent for their treatment and care annually. More than 650,000 additional diabetics are newly diagnosed each year.

Why are some Vietnam veterans worried about their risk of developing diabetes?

Many animal studies provide potential biological mechanisms for an association between herbicide exposure and diabetes risk. Although most earlier reports on humans suggest little association, the potentially more definitive 1997 report from the Ranch Hand Study (the Air Force Health Study of the unit responsible for most of the herbicide aerial spraying in Vietnam) raises the possibility that veterans in the highest herbicide exposure category may be at increased risk.

What did the National Academy of Sciences (NAS) conclude about the relationship between exposure to herbicides and the development of diabetes in its 1993 report, entitled Veterans and Agent Orange – Health Effects of Herbicides Used in Vietnam?

The NAS reviewers noted that there was "limited" information suggesting the possibility of diabetes in chemical production workers and Ranch Hand veterans exposed to TCDD or dioxin (the contaminant produced during the manufacture of one of the ingredients of Agent Orange), but that the data were "inconclusive." In the 1993 report, the NAS found that there is "inadequate or insufficient" evidence to determine whether an association exists between exposure to herbicides and diabetes mellitus.

What was VA's reaction to this NAS finding?

After careful review, Secretary Brown concluded that the credible evidence for an association does not equal or outweigh the credible evidence against an association between exposure to herbicides used in Vietnam and the development of metabolic and digestive disorders, including diabetes mellitus.

In January 1994, VA published a notice in the Federal Register that Secretary Brown has determined that a presumption of service connection based on exposure to herbicides in Vietnam is not warranted for a long list of conditions identified in the NAS report. Metabolic and digestive disorders, including diabetes mellitus, was included in this list. (See 59 Fed. Reg. 341, January 4, 1994).

What did the 1996 NAS update conclude about diabetes?

The 1996 report again concluded that there is "inadequate or insufficient" evidence to determine whether an association exists between exposure to herbicides and diabetes mellitus.

What was VA's response to the NAS 1996 finding regarding diabetes?

After careful review, Secretary Brown concluded that the credible evidence for an association does not equal or outweigh the credible evidence against an association between exposure to herbicides used in Vietnam and the development of metabolic and digestive disorders, including diabetes mellitus.

In August 1996, VA published a notice in the Federal Register that Secretary Brown has determined that a presumption of service connection based on exposure to herbicides in Vietnam is not warranted for a long list of conditions identified in the NAS report. Metabolic and digestive disorders, including diabetes mellitus was included in this list. (See 61 Fed. Reg. 41442, August 8, 1996).

What did the 1998 NAS update conclude about diabetes?

Like the two earlier NAS reports, the 1998 report again concluded that there is "inadequate or insufficient" evidence to determine whether an association exists between exposure to herbicides and diabetes mellitus.

The 1998 update "strongly" urged that the National Institute for Safety and Health (NIOSH) study be documented more completely and published in the peer-review literature of dioxin-exposed workers, so that its potentially important findings can be fully evaluated. The NAS report

"strongly" recommended that the Ranch Hand study develop a fully adjusted multivariate model, fully controlling for baseline age and obesity and, if possible, for family history of diabetes, central fat distribution, diabetogenic drug exposure, and a measure of obesity at the time of Vietnam service.

The NAS reviewers also recommended that consideration be given to a combined analysis of Ranch Hand and NIOSH studies to further examine the possibility that herbicide or dioxin exposure leads to an increased risk of diabetes. The NAS added that using the "new" American Diabetes Association (ADA) definition of diabetes, outcome data from both studies could be made comparable.

What was VA's response to the NAS 1998 report regarding diabetes?

Shortly after the NAS report was released, one additional important study was published (Calvert GM, Sweeney MH, Deddens J, Wall DK. 1999. An Evaluation of Diabetes Mellitus, Serum Glucose, and Thyroid Function Among U.S. Workers Exposed to 2,3,7,8-tetrachlorodibenzo-p-dioxon. Occupational and Environmental Medicine 56:270-276). This led Secretary West to request that the NAS review its previous finding in light of this recent paper. This special, expedited review was completed in May 2000 but was delayed, at VA request, to allow for consideration of a Ranch Hand report which included important findings regarding diabetes. On October 11, 2000, NAS released its report which noted that diabetes should be included in category two (limited/suggestive evidence of an association). On November 9, 2000, Acting Secretary Gober announced that VA would presumptively recognize diabetes for service connection. Implementing regulations are pending.

What is VA doing in partnership with the Juvenile Diabetes Foundation (JDV) on behalf of veterans with diabetes?

In November 1995, VA Medical Research Service sent a Request for Applications to field stations to establish diabetes research centers at selected VA Medical Centers. In 1996, VA and the JDF announced three new diabetes research centers to be co-sponsored in a partnership between the two organizations. The VA/JDF Diabetes Research Centers are located in VA medical centers in Iowa City, Iowa; Nashville, Tennessee; and San Diego, California. The Iowa City Center is focusing on the effects of diabetes of the vascular system. This center is using a multidisciplinary approach aimed at defining the underlying mechanisms of early vascular defects and designing therapies that will either prevent their occurrence or lessen their impact.

The Nashville Center is focusing its research efforts on the study of the cellular and molecular processes by which intensive therapy reduces insulin resistance, the role of exercise in modulating the effectiveness of therapy, and the mechanisms responsible for defective low blood sugar counterregulation in diabetic patients.

The San Diego Center is conducting research to learn more about the basic mechanisms of insulin action so that the causes of insulin resistance can be better understood. The San Diego Center is also conducting research aimed at better understanding the basic causes of complications of the vascular system and kidney.

What is VA doing with the American Diabetes Association (ADA) on behalf of veterans with diabetes?

On March 3, 1998, VA and the ADA signed a Memorandum of Understanding and announced that they would collaborate in determining the most effective ways to treat diabetes. This includes assessing blood monitoring devices and other technology; sharing information to guide research and further collaboration; and exploring the exchange of benchmarking information on quality cost, and productivity.

The ADA is the largest voluntary health organization dedicated to diabetes research. It operates programs in all 50 States and in more than 800 communities.

Where can a veteran get additional information about diabetes?

Information regarding diabetes and related matters can be obtained at public libraries. Information about diabetes an Agent Orange exposure can be obtained from the Registry Physicians at every VA medical center, from the Environmental Agents Service (131), Department of Veterans Affairs, 810 Vermont Avenue, N.W., Washington, DC 20420.

Private health organizations, such as the JDF the ADA, also may be helpful.